EURO NCAP

#FORSAFERCARS

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Q6 and Q10 Dummy Specification and Certification

Crash Protection

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PREFACE

During the test preparation, vehicle manufacturers are encouraged to liaise with the laboratory and to check that they are satisfied with the way cars are set up for testing. Where a manufacturer feels that a particular item should be altered, they should ask the laboratory staff to make any necessary changes. Manufacturers are forbidden from making changes to any parameter that will influence the test, such as dummy positioning, vehicle setting, laboratory environment etc.

It is the responsibility of the test laboratory to ensure that any requested changes satisfy the requirements of Euro NCAP. Where a disagreement exists between the laboratory and manufacturer, the Euro NCAP secretariat should be informed immediately to pass final judgment. Where the laboratory staff suspect that a manufacturer has interfered with any of the set up, the manufacturer's representative should be warned that they are not allowed to do so themselves. They should also be informed that if another incident occurs, they will be asked to leave the test site.

Where there is a recurrence of the problem, the manufacturer’s representative will be told to leave the test site and the Secretary General should be immediately informed. Any such incident may be reported by the Secretary General to the manufacturer and the person concerned may not be allowed to attend further Euro NCAP tests.

DISCLAIMER: Euro NCAP has taken all reasonable care to ensure that the information published in this protocol is accurate and reflects the technical decisions taken by the organisation. In the unlikely event that this protocol contains a typographical error or any other inaccuracy, Euro NCAP reserves the right to make corrections and determine the assessment and subsequent result of the affected requirement(s).

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1 Q6 AND Q10 SPECIFICATION

1.1 General

The Q6 ATD must conform to the specification detailed in Mutual Resolution No. 1 (M.R.1).

The Q10 ATD must conform to the Euro NCAP 2026 specification, which includes the upgrades and parts detailed below. Refer to the dummy user manuals for details of Q10 specification:

Humanetics: 015-9900 Q10 2026 Revision A.

Cellbond: Q10 NCAP 2020/2026 Version 2.0.

1.2 Additions and modifications

Test	Q10 part
MPDB	Euro NCAP 2020 upgrades Full arm Euro NCAP 2026 harmonised components - shoulder pad, scapula, clavicle, abdomen, lumbar spine
AE-MDB	Euro NCAP 2020 upgrades Side impact kit Half arms, left and right Euro NCAP 2026 harmonised components - shoulder pad, scapula, clavicle, abdomen, lumbar spine

1.3 Certification

Details of certification are in the Q6 and Q10 Euro NCAP 2026 dummy user manuals.

The Q6 and Q10 child dummies shall be re-certified after every TWENTY impact tests (e.g. 10 frontal and 10 side impacts, or any combination of the two test types). Hip shields shall be replaced after every dummy certification, hip liners shall be replaced after every twenty impact tests.

The Q10 dummy shoulder lateral impact certification test is to be performed with the side impact shoulder kit only.

If an injury criterion reaches or exceeds its normally accepted limit (e.g. HIC of 700) then that part shall be re-certified.

If any part of the dummy is broken in a test, the part shall be replaced with a fully certified component.

A copy of the dummy certification certificate will be provided as part of the full report for a test.

1.4 Dummy instrumentation

All instrumentation used in the dummy shall be:

Calibrated before the test programme.

Re-calibrated after one year, regardless of the number of tests for which it has been used.

Re-calibrated if it reaches its channel amplitude class (CAC) during any test.

Listed in the test report along with calibration dates

Mounted according to procedures laid out in SAE J211.

Transducer sign convention is detailed in SAE J1733.

In compliance with the thorax displacement sensors and their data processing as specified in ISO/TS21002:2021

The CAC for each transducer shall be chosen to cover the Minimum Amplitude listed in the table. In order to retain sensitivity, CACs which are orders of magnitude greater than the Minimum Amplitude may not be used.

The dummies to be used shall be instrumented to record the channels listed in the following tables.

Q10 Dummy

Location	Parameter		Minimum amplitude
Head	Accelerations, A_x A_y A_z		200g
Head Tilt sensor (static)	Angle		NA
Upper Neck (OC)	Forces	F_x F_y	8.0kN
		F_z	10.0kN
	Moments	M_x M_y	90Nm
		M_z	45Nm
Shoulder (side only)	Forces	F_x F_z	2.0kN
		F_y	4.0kN
T1 (side only)	Accelerations, A_y		200g
Chest (T4)	Accelerations, A_x A_y A_z		200g
	Displacement & rotation		90mm 40deg
Thoracic temperature	Temperature		30°C
Lumbar spine (Lower)	Forces	F_x F_y	6.0kN
		F_z	8.0kN
	Moments	M_x M_y	150Nm
		M_z	75Nm
Pelvis - Sacrum	Accelerations, A_x A_y A_z		200g
Pelvis – Pubis (side only)	Forces, F_y		2.0kN
Iliac (L & R) (OPTIONAL)	Force, Fx		9kN
	Moment, My		220Nm
Pelvis Tilt sensor (static)	Angle		NA

See Section 1.9 regarding dummy temperature measurement.

Q6 Dummy

Location	Parameter		CAC
Head	Accelerations, A_x A_y A_z		200g
Upper Neck (OC)	Forces	F_x F_y	5.0kN 5.0kN
		F_z	6.0kN
	Moments	M_x M_y	90Nm
		M_z	45Nm
Chest	Accelerations, A_x A_y A_z		200g
	Displacement		90mm
Thoracic temperature	Temperature		30°C
Iliac (L & R) OPTIONAL	Force, Fx		9kN
	Moment, My		220Nm

See Section 1.9 regarding dummy temperature measurement

1.5 Dummy clothing

Each child dummy shall wear their appropriate suits marked with grids, Q6 (with Cordura patches) and Q10.

The Q10 shall be installed with left and right hand hip shields with Shore D specification 55D ± 5. Hip liners may only be used for the Q10 when seated on an integrated CRS. See Section 1.3 for replacement frequency of consumable parts.

The Q6 shall be installed without either hip shields or a hip liner when using a booster seat. Hip liners may only be used for the Q6 when seated on an integrated CRS.

1.6 Dummy joints

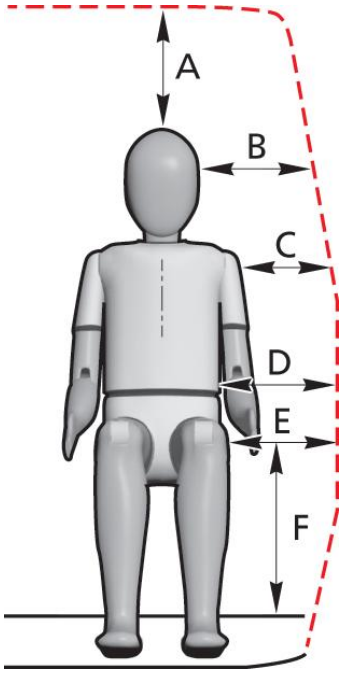
Follow the procedures in the dummy user manual for joint setting.

The dummy joints shall be set as close as possible to the time of the test and, in any case, not more than 24 hours before the test.

Maintain the dummy temperature within the permissible temperature range between the time of setting the limbs and up to a maximum of 5 minutes before the time of the test.

1.7 Q10 dummy positioning measurements

The following measurements are to be recorded prior to the test but after positioning procedures have been carried out.



Q10	
A	Top of head to roof (vertically)
B	Head CoG to door/window (horizontal)
C	Shoulder (pivot point) to door/window (horizontal)
D	Lower rib to door (horizontal)
E	Hip joint (femur mounting hole) to door (horizontal)
F	Hip joint (femur mounting hole) to floor (vertical)
α	Head angle (where fitted)
β	Pelvic angle (tilt sensor)

Figure 1: Q10 dummy measurements

1.8 Dummy painting and marking

The dummies shall have non-metallic, crepe paper based masking tape placed on the areas to be painted using the sizes detailed below. The tape must be completely covered with the following coloured paints. The paint shall be applied close to the time of the test to ensure that the paint will still be wet on impact.

Q6 and Q10	Colours
Top of head	Blue 75 x 75mm square
Head-band **(colours from left to right)**	Red, Yellow, Green 25mm wide Widest circumference at eyebrow level at front, extending to the head CofG at each side.

Adhesive target markers shall be attached to the top/rear of the child dummy's head in order to aid the assessment of the child head containment.

1.9 Dummy temperature

The Q6 and Q10 shall have a stabilised temperature of 18ºC to 22ºC.

Both dummies shall be equipped with onboard temperature sensors attached in accordance with ISO TR 27957, and the temperature sensors shall meet the requirements of ISO 6784.

A stabilised temperature shall be obtained by soaking the dummy in temperatures that are within the range specified above for at least 1 hour prior to the test. The temperature shall be recorded at intervals not exceeding 10 minutes and not exceeding 5 minutes before test. All readings shall be supplied as part of the standard output of the test.

After switching on in-dummy data acquisition, the air inside the dummy and the sensors may warm up whereas the dummy itself is still at a lower temperature. Such sudden temperature rises do not reflect the actual dummy temperature and may be ignored as long as they do not exceed a duration of 20 minutes.

1.10 Post test inspection

The dummies should be visually inspected immediately after the test.

Any lacerations of the skin or breakages of a dummy should be noted in the test specification. A dummy may have to be re-certified in this case.

Any screws that have become loose or detached shall be re-tightened to the required torque or replaced as necessary.